

Ticks and Disease: Know How to Keep Yourself Safe!

What is a tick? A tick is not an insect. It is related to the spider. The whole spider



family is called arachnids (a-rak-nids). All arachnids have eight legs (insects only have six). Like spiders, ticks cannot fly. Some ticks are soft and squishy, like a dog tick. Others, like deer ticks, have a very hard shell. Ticks feed on the blood of animals, including humans. You may not even know that you have been bitten because you can barely feel a tick bite. Ticks are very small, about the size of a sesame seed. Young ticks can be even smaller! Once a tick has bitten you it can stay attached to your skin for several weeks if you don't remove it.

Ticks do not have a true head, only mouthparts projecting from the front edge of the body. A tick inserts these mouthparts into the host's tissue during the blood-feeding process. A hard, shield-like plate covers the entire top surface of the adult male, but it covers only about one-third of the front part of this surface in the female. During feeding, the male takes only a small amount of blood, but the female feeds to engorgement, greatly swelling and stretching the non-hardened portion of her body to several times its original size.

What is Lyme Disease? Some ticks carry a sickness called Lyme disease. Not all ticks carry the disease. So if you get bitten, don't worry! Just watch the skin around your tick bite. If the bite looks red right after you remove the tick, that just means your skin didn't like the tick's saliva (spit!). Some people are allergic to tick spit. If you get a rash in the shape of a circle around the bite, that could be Lyme disease. The rash usually shows up one to two weeks after you are bitten. Lyme disease can be cured if a doctor treats you with antibiotics right away. Some other signs of Lyme disease are tiredness, fever, headache, and upset stomach.

What is Rocky Mountain Spotted Fever (RMSP)? RMSF is a rickettsial disease caused by *Rickettsia rickettsii*. Symptoms include a rash that often appears first on the wrists and ankles and that later spreads to all parts of the body. It usually is accompanied by headache, backache, high fever and general malaise. Signs may appear initially two days to two weeks after an encounter with an infected tick. In a few cases, no rash occurs at all. Early diagnosis and antibiotic treatment are important. Although a few cases of RMSF do occur in the Rockies, most are reported in midwestern states such as Oklahoma, Missouri, and eastward to Virginia.

In Missouri, RMSF is transmitted principally by the American dog tick and the Lone Star tick. Prompt removal of the tick from the skin greatly reduces the chance of transmission because the pathogen is not likely to be transferred during the initial period of tick attachment.

Are there other diseases in humans caused by ticks? Yes. Other human diseases that are associated with tick bites are tularemia and ehrlichiosis. Tularemia, caused by the bacterium *Francisella tularensis*, is highly infective, known most commonly as "rabbit fever." It generally follows a history of skinning rabbits or rodents, or the bite of a tick or horse fly. Symptoms resemble an influenza attack, with an initial high fever, a short remission and a further fever period of two weeks. This may be followed by a local lesion at the site of infection, possible conjunctivitis and enlarged lymph nodes.

Ehrlichiosis is caused by the pathogen *Ehrlichia canis*, a rickettsia-like organism that primarily causes disease in dogs, and in humans secondary. Several human cases have been diagnosed in Missouri.

What if a tick bites me? If a tick bites you, remove the tick with a pair of tweezers. Do **NOT** use your fingernails. Use the tweezers to grab the tick close to your skin and gently pull straight out. Another safe way to remove the tick is to gently grab the tick close to your skin with the tweezers and roll the tweezers in one direction. Do **NOT** grab the tick by the body and Do **NOT** twist the tick out. If you do this, part of the tick's head could be left inside your body and get infected! Save the tick and place it in a jar of alcohol to kill it. Clean the bite with alcohol. Watch the bite for the next few weeks to see if you get a circular rash. If you see a rash or feel sick, see a doctor. Don't forget to show the tick to your doctor. He can tell you if it's the kind of tick that can carry Lyme disease (like a deer tick).

Avoid:

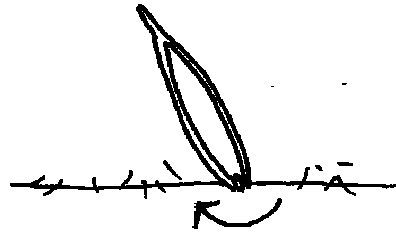
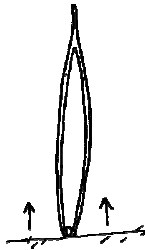
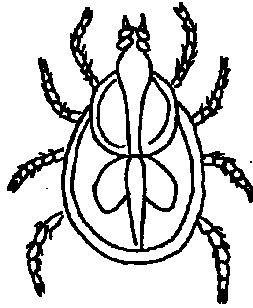
1. Squeezing the contents of the tick back into your skin because it's almost like a hypodermic and could force disease-causing organisms into your skin if any are present; and
2. Leaving the tick's mouthparts in the skin. The latter is likely to cause a small, hard nodule ("tick bite granuloma") at the site, which may be annoying until your body rids itself of it.

Smearing petroleum jelly on the tick, squirting lighter fluid on it, or holding a lighted cigarette up against it will not work. When feeding, ticks are embedded so firmly they can't voluntarily release themselves, except to slough off at the end of their feeding. Therefore, to get a tick off, you'll have to pull it off. After removal, use a local antiseptic at the site of the bite. Squeeze the tick in some toilet tissue and flush it down the toilet.

Deer Tick

You can pull a tick straight up, or

You can roll the tick out, but do **not** twist!



Where do I look for ticks on me? Ticks like warm, dark places. Good places to look for them are the back of the knee, thighs, belly button, armpit, ears, hair, or the back of your neck.

What about ticks on my pets? Ticks will drink blood from animals, too. You can use tweezers (or special tick removing tools from a pet store) to remove ticks. Some special collars and powders protect your pet from ticks. A good bath is great for your pet, too!

What can I do to stay away from ticks? Ticks like to live in shady, wooded areas. They can be found in tall grass, Spanish moss, bushes, low tree branches, and sometimes even lawns and gardens. They especially like warm weather, so you should be extra careful during summer. Ticks are usually found from April through September, but they can be around whenever it is warm outside.

When you're outside, take necessary precautions to avoid tick bites:

- Wear long pants /sleeves whenever possible.
- Use appropriate insect sprays (see below).
- Wear light colored clothes (it's easier to see ticks since they are dark).
- Always wear closed shoes (like sneakers and boots, not sandals).
- Tuck your pants into your socks so that ticks can't get inside your clothes.
- Check yourself often for ticks on your skin or clothes.
- If you're hiking, stay on clear trails (don't go into heavily wooded areas).

When you go inside make sure you:

- Wash your clothes to kill any ticks.
- Take a shower.
- Check yourself for ticks.

What about insect repellents? If you're in a tick-infested area, use tick repellent. The best available is an aerosol clothing treatment, Permanone® or Coulston's Permethrin

Tick Repellent. Both products contain 0.5 percent permethrin insecticide. Spray only on clothing surfaces and let it dry before wearing the clothing. It repels ticks and remains effective through many launderings. Buy it through sporting-goods stores and outdoor outfitters. Other repellents, such as powdered sulfur and DEET, are variably effective.

Permethrin is a contact repellent (an insecticide) rather than a repellent. For scabies, a 5% cream known as Elimite is used directly on the skin. For lice, a 1% lotion, Nix, is also applied directly to the body, with very specific instructions for its use and removal. Permethrin products have a long history of use, and when compared to DEET, we observe the following: A spray of 0.5% (1/2%) permethrin confers 100% protection against ticks, as compared with 85% protection using a 20% concentration of DEET, and a 90% protection using 30% DEET. Permethrin not only repels ticks, but also works against lice, fleas, mites, mosquitoes, and blackflies.

Diethyltoluamide (DEET) comes in lotions, solutions, creams, sticks and sprays. The higher concentrations of DEET have longer duration of action and are generally more effective, but only have up to a 50% concentration. No increased benefit is conferred by a 100% concentration, you just get more side effects. A new slow-release formulation of DEET named Editar is as yet not available, but promises a longer duration of action and greater acceptability at a lower concentration.

Avon Skin-So-Soft, which is sold as a bath oil, has been noted to be good at reducing the mosquito that transmits yellow fever. Although used widely, it has no proven benefit for tick protection.

Citronella, also used for flying insects, is derived from tropical grasses found in Asia. It smells good in low concentrations, and can be quite powerful if used heavily, but has little use in effective tick protection plans.

Interestingly, and rather usefully, the combination of DEET on exposed skin and permethrin on clothing provides superior protection than either agent alone. Not, however, without some, at least theoretical, risk. DEET and permethrin combined may increase neurotoxicity. In fact, it is postulated that the triple combination of DEET, permethrin, and pyridostigmine (an anti-nerve gas agent) further increases neurotoxicity, and may explain some of the signs and symptoms of the "Gulf War Syndrome."

Some of the common or trade names for products with DEET include: Cutter, OFF!, Skintastick, Repel, and Muskol.

Permethrin products include: Permanone, Coulston's, and Duranon

What can I do to keep ticks out of my yard? You can't get rid of ticks completely, but there are things you can do to keep the number of ticks low:

- Keep the grass mowed.

- Avoid putting plants in the yard that attract deer and other animals (ticks live on animals).
- Clear brush, leaf litter and tall grass from around the house.
- Keep the ground under bird feeders clean so you do not attract small animals (like squirrels).
- Have a professional spray the house and yard with an insecticide in late May (to kill young ticks) and in September (to kill adult ticks).

